

## CLAIMS

1. An apparatus for selectively interconnecting a plurality of ports,  
2 comprising:  
a cross-bar switch, having a plurality of bi-directional data ports, and  
4 a controller, operable to control said cross-bar switch to interconnect any  
two of said plurality of bi-directional data ports.

2. The apparatus in Claim 1 wherein said plurality of bi-directional ports  
2 are adapted to interconnect RS-232 ports.

3. The apparatus of Claim 1 wherein said cross-bar switch is  
2 implemented with a plurality of digital buffers.

4. An apparatus, comprising:  
2 first, second, and third interfaces each having an input and an output;  
an interface controller having a first, second, and third control outputs,  
4 and operable to enable any one of said outputs individually;  
a first, second, third, fourth, fifth, and sixth buffer, each having an input,  
6 an output, and a control input, and wherein said control inputs enable and  
disable the coupling of signals through said buffers, and wherein  
8 said output of said first and second buffers are coupled to said input of  
said first interface;  
10 said outputs of said third and fourth buffers are coupled to said input of  
said second interface;  
12 said outputs of said fifth and sixth buffers are coupled to said input of  
said third interface;  
14 said output of said first interface is coupled to said input of said fourth  
and fifth buffer;  
16 said output of said second interface is coupled to said inputs of said first  
and sixth buffers;  
18 said output of said third interface is coupled to said inputs of said second  
and third buffers;  
20 said first control output is coupled to said control inputs of said first and  
fourth buffers;  
22 said second control output is coupled to said control inputs of said third  
and sixth buffers, and

24           said third control output is coupled to said control inputs of said second  
and fifth buffers.

2           5. The apparatus of Claim 3 including means for disabling said control  
inputs sets said outputs of said buffers to a high impedance state, and wherein  
said interface controller is operable to disable all of said control outputs.

2           6. The apparatus of Claim 3 wherein said interfaces are serial port  
interfaces.

2           7. The apparatus of Claim 6 wherein said serial port interfaces are RS-  
232 serial port interfaces.

2           8. The apparatus of Claim 6 wherein said output of said serial port  
interface is a transmit data output, and said input of said serial port interface is  
a receive data input.

2           9. The apparatus of Claim 7 wherein said output of said serial port  
interface is a request to send output, and said input of said serial port interface  
is a clear to send input.

2           10. The apparatus of Claim 4 wherein said interface controller is  
incorporated into one of said interfaces.

2           11. An apparatus, comprising:  
a plurality of  $n$  interfaces, each having an input and an output;  
a plurality of  $n(n-1)$  buffers, each having an input, an output, and a  
4 control input, and wherein said control inputs enable and disable the coupling  
of signals through said buffers, respectively;  
6 an interface controller having a plurality of  $(n-1)$  control outputs, and  
operable to enable any one of said plurality of outputs individually, and  
8 wherein

10           said outputs of a unique  $(n-1)$  of said plurality of buffers are coupled to  
said input of each one of said plurality of interfaces;

12           every one of said outputs of said plurality of interfaces is uniquely  
coupled to said input of one of said  $(n-1)$  plurality of buffers that are coupled to  
said inputs of every other of said plurality of interfaces, such that said output of

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14 every interface is coupled to said input of every other interface through a  
unique one of said plurality of buffers, and

16 each one of said plurality of control outputs is coupled to said control  
inputs of the two of said plurality of buffers that couples a unique pair of the  
18 ( $C_2$ ) combinations of said interface inputs and outputs.

12. The apparatus of Claim 11 wherein disabling said control inputs sets  
2 said outputs of said plurality of buffers to a high impedance state, and wherein  
said interface controller is operable to disable all of said plurality of control  
4 outputs.

13. The apparatus of Claim 11 wherein said plurality of interfaces are  
2 serial port interfaces.

14. The apparatus of Claim 13 wherein said serial port interfaces are RS-  
2 232 serial port interfaces.

15. The apparatus of Claim 13 wherein said output of said serial port  
2 interface is a transmit data output, and said input of said serial port interface is  
a receive data input.

16. The apparatus of Claim 14 wherein said output of said serial port  
2 interface is a request to send output, and said input of said serial port interface  
is a clear to send input.

17. The apparatus of Claim 11 wherein said interface controller is  
2 incorporated into one of said interfaces.

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